operations to be conducted from one mine working. The model had the form of a box of organic glass plates. In the observations the box was filled with mineralized water having a variable NaCl concentration. The results of the modeling confirmed that the radio-wave translucence method can be applied on objects with low conductance. In the field work the absorption factors of an orebody and its host-rocks were determined at many points of the deposit. Within the same horizon the magnitudes of the absorption factor appeared to remain practically constant; for the deposit as a whole, however, they are characterized by a rather high scatter. Ore zones differ in comparison with host-rocks in their reduced resistivity; this is evidently explained by their jointing, hydrothermal alteration, and sulfidization. Observations by the radio-wave translucence method were made on a known ore zone, exposed by a drift and a crosscut. The ore zone was displayed on the observed curve. The electromagnetic profiling method was also tested in drifts. The possibility of mapping fault zones is shown.
[Abstracter's note: Complete translation]

Card 2/2

BONDARENKO, V.M.; DEMIDOVICH, O.A.; TARKHOV, A.G.

First results of the combined use of geophysical methods of direct prospecting for diamond deposits in the Yakut A.S.S.R. Izv.vys. ucheb.zav.; geol.i razv. 4 no.2:118-132 F '61. (MIRA 14:6)

1. Moskovskiy geologorazvedochnyy institut imeni S.Ordzhonikidze.
(Yakutia—Diamonds) (Prospecting—Geophysical methods)

AID Nr. 91[illegible] BONDARENKO, V.M.

UNDERGROUND COSMIC RAY RECORDINGS TO SOLVE GEOLOGIC PROBLEMS (USSR)

Blokh, Ya. L., V. M. Bondarenko, and A. G. Tarkhov. Geomagnetizm i aeronomiya, v. 3, no. 2, 1963, 390-392. S/203/63/003/002/025/027

A recent Soviet experiment using underground measurements of cosmic rays to detect and delineate an ore body was carried out in the Central Urals with a narrow-direction, 3-way recording counter telescope. The resolution time of the counter circuit was about 5 μsec and the effective area of the telescope was 0.1 m^2. Both the counter and the electronic circuits were powered by dry-cell batteries. Unique features of the experiment were that 1) the telescope had different dimensions in 3 directions and 2) this was the first Soviet attempt with this method to distinguish between ore bodies — copper pyrite, density ρ = 4.58 g/cm^3 — and country rocks — quartz-sericite schists (ρ = 3.27 g/cm^3) and quartz-albite porphyries (ρ = 2.74 g/cm^3).

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The cover rock along the 600-m section was 315-350 m thick. Radiation was measured at 3 points under the ore body and at 2 in the country rock. The results demonstrated that actual rock densities compared favorably with their theoretically computed values and that underground cosmic ray measurements can be used successfully to determine rock densities, depths of observation points, and the thicknesses of overlying masses. [ER]

BONDARENKO, V.M.; TARKHOV, A.G.

Using penetrating cosmic radiation to determine the mean density of rocks. Razved. i okh. nedr 30 no.4:30-34 Ap '64.

(MIRA 17:12)

1. Moskovskiy geologorazvedochnyy institut imeni Sergo Ordzhonikidze.

BLOKH, Ya.L.; BONDARENKO, V.M.

Cosmic rays and geology. Priroda 53 no.9:85-89 '64.
(MIRA 17:10)

1. Institut zemnogo magnetizma, ionosfery i rasprostraneniya radiovoln AN SSSR, Moskva (for Blokh). 2. Moskovskiy geologorazvedochnyy institut im. S. Ordzhonikidze, Moskva (for Bondarenko).

ACC NR: AT6028388 (N) SOURCE CODE: UR/0000/65/000/000/0275/0288

AUTHOR: Bondarenko, V. M.; Kovalenko, N. D.; Mudretsova, Ye. A.; Tarkhov, A. G.

ORG: none

TITLE: Underground geophysical exploration

SOURCE: International Geological Congress. 22d, New Delhi, 1964. Geologicheskiye rezul'taty prikladnoy geofiziki (Geological results of applied geophysics); doklady sovetskikh geologov, problema 2. Moscow, Izd-vo Nedra, 1965, 275-288

TOPIC TAGS: borehole, tellurometry, radio field, ore prospecting, anomaly, gradient, geophysical prospecting, GEOPHYSIC EXPEDITION, RADIO WAVE, GEOLOGIC SURVEY

ABSTRACT: Field geophysical measurements conducted at the surface are not always sufficiently deep. An important contribution to this problem can be made by conducting underground observations in the available or specially provided mines (boreholes). Radio-wave surveying, which detects differences in rock conductivities is one of the best available methods. It measures intensity and phase structure of radio-frequency fields. Different modifications have been developed for single mines (boreholes). At present the method is used for ore prospecting (massive, impregnated, sulphide, and even uranium ores, the latter generally slightly mineralized). The method may be recommended for locating zones of high water content which may be dangerous for explora-

Card 1/2

ACC NR: AT6028388

tion. The specific character of underground gravity measurements depends upon the low intensity of the anomalies. This method requires high accuracy of measurements and allowance for interference (relief, walls of the mine, empty cavities, collapse zones). Three-dimensional templets have been prepared for small objects. Complex measurements include general gravity surveys and gradient meter observations. The method helps to locate the position and to determine the thickness and extension of the ore bodies which have been missed during mining (copper and iron). Intensity of cosmic rays decreases with the increase of the rock mass through which muons penetrate. Underground measurements provide the data on the average density of the overlying rocks (for making corrections of gravity data) and located overlying geological objects. Tests operations (for copper, iron, and complex metal ores and tunnels) have been successful. To raise the effectiveness of underground prospecting and mining, it is necessary to apply other geophysical methods such as magnetometry, seismic prospecting, thermometry, and various modifications of electric prospecting. Particularly interesting in combination of surface and underground geophysical investigations. Orig. art. has: 8 figures.

SUB CODE: 08/ SUBM DATE: 06Jan65/ ORIG REF: 010/ OTH REF: 002

Card 2/2

L 09972-67 EWT(1) GD

ACC NR: AT6022280 SOURCE CODE: UR/0000/66/000/000/0083/0088

42

AUTHOR: Strel'chenko, A. I.; Bondarenko, V. M.

ORG: none

TITLE: A stripline guide with a lattice-type inner conductor and ferrite filling

SOURCE: Vsesoyuznaya naychnaya sessiya, posvyashchennaya Dnyu radio. 22d, 1966. Sektsiya kvantovoy elektroniki. Doklady, Moscow, 1966, 83-88

TOPIC TAGS: waveguide, waveguide propagation, waveguide design, ferrite

ABSTRACT: Figures 1 and 2 show a periodic structure formed by a flat lattice between two infinitely conductive planes. The space between the planes is filled with ferrite. Dispersion equations for this structure are derived. It is assumed that the lattice strips are infinitely thin and oriented at an arbitrary angle α to the direction of the energy propagation. The system extends to infinity in y and z directions. Of particular interest is a special case in which there is no relation between the electromagnetic field and the changes in y. Under these conditions all field components can be expressed in terms of H_y

$$H_x = -j\frac{\gamma^2 - \omega^2\mu\varepsilon}{\omega^2 k\varepsilon} H_{y_1}$$

$$H_z = -j\frac{\alpha\beta}{\omega^2\varepsilon}\frac{\gamma^2 - \omega^2\mu\varepsilon}{\alpha^2 - k_x^2} H_{y_1} \qquad (1)$$

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$$E_x = -\frac{\beta}{\omega\varepsilon} H_{y_1}$$

$$E_y = -j\frac{k_z^2\beta}{\omega^3 k\varepsilon^2} \cdot \frac{\gamma^2 - \omega^2\mu\varepsilon}{\chi^2 - k_z^2} H_{y_1} \qquad (1)$$

$$E_z = -\frac{\chi}{\omega\varepsilon_1} H_{y_1}$$

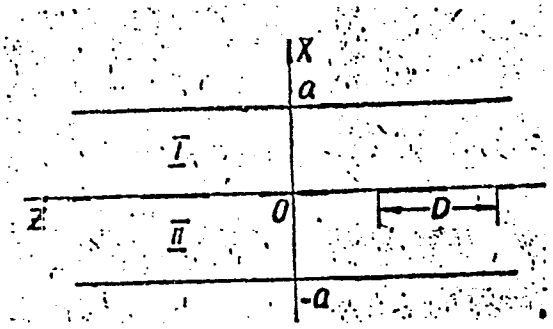

Fig. 1

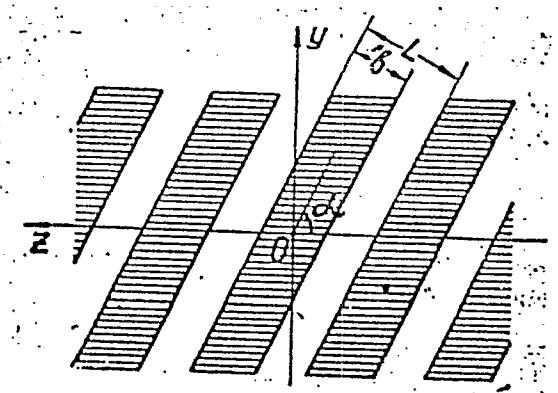

Fig. 2

where $H_y = Me^{-j(\varkappa x+\beta z)} e^{j\omega t}$,

ε is the dielectric constant for ferrite, $\varkappa$, β are propagation constants for x and z axes, related to the propagation constant of wave γ by

$$\varkappa^2+\beta^2=\gamma^2; \qquad k_x=\omega\sqrt{\mu_x\varepsilon}.$$

Because of the periodicity of this system ($D = L/\cos\alpha$) in the direction of z any variable representing the field propagation in this system may be resolved into a series of space harmonics. The system can then be analyzed in terms of its isotropic regions I and II (see fig. 1), applying appropriate boundary conditions

$$F_y|_{x=\pm a}=0,\ F_z|_{x=\pm a}=0 \qquad (2)$$

$$\left.\begin{aligned} &F_y\sin\alpha-F_z\cos\alpha=0,\\ &(H_y^{\mathrm{I}}-H_y^{\mathrm{II}})\sin\alpha-(H_z^{\mathrm{I}}-H_z^{\mathrm{II}})\cos\alpha=0,\\ &E_y^{\mathrm{I}}-E_y^{\mathrm{II}}=0,\\ &E_z^{\mathrm{I}}-E_z^{\mathrm{II}}=0 \end{aligned}\right\} \quad \text{for } x=0. \qquad (3)$$

Substituting the field components derived in (1) into (2) and (3) a system of homogeneous linear equations is obtained in terms of eight unknown coefficients. Setting the determinant of this equation system equal to zero, a dispersion equation for it is obtained of the form

$$d_{10}\frac{\varkappa_{10}a}{2}\operatorname{tg}\frac{\varkappa_{10}a}{2}=d_{20}\frac{\varkappa_{20}a}{2}\operatorname{tg}\frac{\varkappa_{20}a}{2}, \quad (4)$$

$$d_{10}\frac{\operatorname{tg}\frac{\varkappa_{10}a}{2}}{\frac{\varkappa_{10}a}{2}}=d_{20}\frac{\operatorname{tg}\frac{\varkappa_{20}a}{2}}{\frac{\varkappa_{20}a}{2}}, \quad (5)$$

$$\left(\frac{k_z^2}{\Gamma_{10}^2}\sin^2\alpha+\frac{d_{10}}{d_{20}}\cos^2\alpha\right)\operatorname{th}\Gamma_{10}a=\left(\frac{d_{10}}{d_{20}}\frac{k_z^2}{\Gamma_{10}\Gamma_{20}}\sin^2\alpha+\frac{\Gamma_{20}}{\Gamma_{10}}\cos^2\alpha\right)\operatorname{th}\Gamma_{20}a, \quad (6)$$

where

$$d_{i0}=\frac{\varkappa_{i0}^2-k_z^2}{\varkappa_{i0}^2+\beta_0^2-\omega^2\mu\varepsilon};\quad \Gamma_{i0}=j\varkappa_{i0}.$$

The equations (4) and (5) describe the quasi-waves H and E between the lattice and the one of the planes. They are equivalent to the system, consisting of two conductive metallic planes containing a longitudinally magnetized ferrite. Equation (6) describes slow waves. For de-magnetized ferrite, this equation produces an explicit ex-

L 09972-67
ACC NR: AT6022280

pression for the propagation constant

$$\beta_0 = \frac{\omega\sqrt{\mu_0\varepsilon}}{\cos\alpha}, \qquad (7)$$

The authors also analyze the equation (6) for $\alpha = 90^\circ$, $\alpha = 0$, and $\alpha \to \infty$. Orig. art. has: 3 figures, 9 formulas.

SUB CODE: 09,12,17/ SUBM DATE: 11Apr66/ ORIG REF: 003

Card 5/5

L 09971-67 EWT(1) GG/GD

ACC NR: AT6022281 SOURCE CODE: UR/0000/66/000/000/0089/0094

AUTHOR: Bondarenko, V. M.; Strel'chenko, A. I. 49

ORG: none

TITLE: Propagation of electromagnetic waves in a comb-like flat surface system with a ferrite filling

SOURCE: Vsesoyuznaya nauchnaya sessiya, posvyashchennaya Dnyu radio. 22d, 1966. Sektsiya kvantovoy elektroniki. Doklady. Moscow, 1966, 89-94

TOPIC TAGS: wave propagation, electromagnetic wave, microwave delay, dielectric layer, ferrite

ABSTRACT: A cross section of a retardation system for microwaves is shown in fig. 1. The comb-like structure is filled with ferrite material, and the space between the comb and the flat surface $x = a$ is filled with another material. It is assumed that the system extends to infinity in the y and z axes. The z-axis coincides with the direction of energy propagation and the direction of the magnetizing (bias) field $\overline{H}_0$. The boundary surfaces enclosing the system have infinite conductivity. The field components within the system may be expressed, due to the presence of a periodic structure, by

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$$\sum_{\nu=-\infty}^{+\infty} \psi_\nu(x, y)\, e^{j(\omega t - \beta_\nu z)} \qquad (1)$$

where

$$\beta_\nu = \beta_0 + \frac{2\pi\nu}{L} \qquad (2)$$

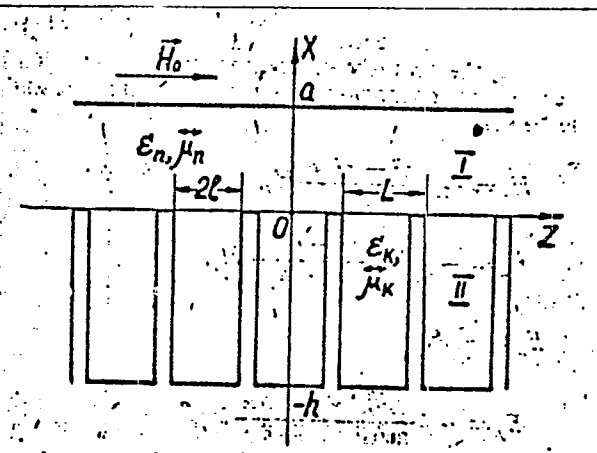

Fig. 1

β_ν is the propagation constant of the ν-th space harmonic and L is the period of the comb-like structure. For a field independent of changes in y, (1) can be simplified to

$$\sum_{\nu=-\infty}^{+\infty} \psi_\nu(x)\, e^{j(\omega t - \beta_\nu z)}, \qquad (3)$$

The system can be divided into regions as shown in fig. 1 and the fields calculated for each region separately. Using this method and the initial expressions (1,2,3) the authors derive the wave propagation equation for this system

$$a_0 h \operatorname{tg} a_0 h - \frac{\varepsilon_\kappa}{\varkappa_n}\left(\frac{\beta_0 l}{\sin \beta_0 l}\right)^2 \frac{1}{1-\frac{d_{20}}{d_{10}}} \frac{h}{a} \frac{L}{2l} \gamma_{10} a \times$$

$$\times \frac{2(\operatorname{ch}\gamma_{10}a \operatorname{ch}\gamma_{20}a - 1) - \left(\frac{d_{10}\gamma_{10}}{d_{20}a_{20}} + \frac{d_{20}\gamma_{20}}{d_{10}\gamma_{10}}\right)\operatorname{sh}\gamma_{10}a \operatorname{sh}\gamma_{20}a}{\operatorname{ch}\gamma_{10}a \operatorname{ch}\gamma_{20}a - \frac{d_{10}\gamma_{10}}{d_{20}\gamma_{20}}\operatorname{sh}\gamma_{20}a \operatorname{ch}\gamma_{10}a} = 0. \quad (4)$$

where

$$\gamma_{1,20} = \sqrt{\beta_0^2 - \frac{k_{zn}^2 + k_{\perp n}^2}{2} \mp \pm \sqrt{\left(\beta_0^2 - \frac{k_{zn}^2 + k_{\perp n}^2}{2}\right)^2 - k_{zn}^2 k_{\perp n}^2 + 2\beta_0^2 k_{zn}^2 - \beta_0^4}}; \quad k_{zn} = k_0\sqrt{\varepsilon_n}; \quad (5)$$

and

$$a_0 = \begin{cases} k_{\perp\kappa} & \text{ferrite filling} \\ k_0\sqrt{\varepsilon_\kappa} & \text{dielectric filling} \end{cases} \rightarrow \sqrt{-\gamma_z^4 \frac{\mu_{zn}}{\mu_\kappa} + 2\gamma_z^2 k_{z\kappa}}; \quad k'_{\perp n,\kappa} = k_0\sqrt{\varepsilon_{n,\kappa}\left(\mu_{n,\kappa} - \frac{k_{n,\kappa}^2}{\mu_{n,\kappa}}\right)};$$

$$k_0 = \frac{2\pi}{\lambda_0}.$$

The numerical analysis of the equation (4) was carried out on a computer. The numerical results agreed well with experimental data. Orig. art. has: 1 figure, 8 formulas.

SUB CODE: 20,12,09/ SUBM DATE: 11Apr66/ ORIG REF: 005/ OTH REF: 002

Card 3/3 6/10

BONDARENKO, V.M., inzh.;VETROV, A.N., master

Operation of the oil supply department of 110-220 kv. oil-filled cable lines in the Moscow Regional Power System Administration. Energetik 12 no.5:26-30 My '64. (MIRA 17:6)

L 20501-65 EWT(m)/EWP(b)/EWP(e)/EWP(t) Pq-4 SSD/AFWL/ESD(gs)/IJP(c) WH/JD
ACCESSION NR: AP4038648 S/0109/64/009/005/0876/0881

AUTHOR: Bondarenko, V. N.; Litvinova, E. M.; Snitko, O. V.; Tkhorik, Yu. A.

TITLE: Effect of some coatings and thermal treatment of the surface recombination rate of silicon and germanium

SOURCE: Radiotekhnika i elektronika, v. 9, no. 5, 1964, 876-881

TOPIC TAGS: silicon, metal coated silicon, germanium, metal coated germanium, surface recombination, surface recombination rate

ABSTRACT: An experimental investigation of the effects of (1) low-temperature annealing of Si and Ge in He atmosphere and in contact with low-melt inorganic glasses and (2) coating Si and Ge with a very thin film of Au or Al upon the surface recombination rate (s) is reported. Single-crystal, 0.4-0.7-mm thick, Si and Ge plates were tested. Four types of glass were used: (1) Tl_2Se As_2Se_3 (with a softening temperature of 109C), $As_2Se_3 + I_{1.5}$ (85C), $As_2Se_3 + I_2$ (70C),

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3

and $Tl_2S \cdot 2As_2S_3$. It is found that annealing of n- or p-type Ge results in an increase of s by 2-3 times; a subsequent contact with glass results in an overall increase of s by 3-6 times. Annealing of Si results in 2-4 times lower s; with a subsequent glass treatment, s was reduced to about 300 cm/sec. The same value of s was obtained by a vacuum-spraying of n-Si by gold (0.1-0.2 micron thick). The preliminary results of Al spraying were negative. "The authors wish to thank B. T. Kolomiyets and V. P. Shilo for lending the glasses." Orig. art. has: 1 figure, 2 formulas, and 3 tables.

ASSOCIATION: Institut poluprovodnikov AN UkrSSR (Institute of Semiconductors, AN UkrSSR)

SUBMITTED: 22Mar63 ENCL: 00

SUB CODE: MM, SS NO REF SOV: 006 OTHER: 004

Card 2/2

BONDARENKO, V.N., gornyy inzhener

Using a vertical cut in multirow short-delay blasting in an open pit of the Southern Ore-Dressing Combine. Vzryv. delo no.47/4: 99-102 '61. (MIRA 15:2)

1. Yuzhnyy gornobogatitel'nyy kombinat.
(Krivoy Rog Basin--Blasting)

ALIKAYEV, V.A.; TARANENKO, I.L., veterinarnyy vrach; NIKOLAYEV, P.Ya., veterinarnyy vrach; MIKHAYLETS, R.M., veterinarnyy vrach; ARTEMENKO, I.A., veterinarnyy fel'dsher; MOSKALENKO, A.N., veterinarnyy fel'dsher; AL'BERTYAN, M.P., veterinarnyy vrach; SKARBOVENKO, V.I., veterinarnyy vrach; MOROZOV, A.I., veterinarnyy fel'dsher; VESHCHEVAYLOV, V.T., veterinarnyy vrach; LUZHENKO, I.U., veterinarnyy fel'dsher; RUDOMETKIN, Ya.L., veterinarnyy vrach; PARSHUTKIN, I.M., veterinarnyy vrach; GOLOVANOVA, A.I., veterinarnyy vrach; SHIPILOVA, N.M., veterinarnyy vrach; SPIROV, V.D., veterinarnyy vrach; BONDARENKO, V.N., veterinarnyy vrach; KOVAL', P.K., veterinarnyy fel'dsher; ZHAMSUYEV, B.TS., veterinarnyy vrach; APALEV, Ye.M., veterinarnyy vrach; KOLOTIY, N.A., veterinarnyy vrach

Diseases of the young animal, their prevention and treatment; based on data received by the editors. Veterinariia 39 no.1:49-54 Ja '62. (MIRA 15:2)

1. Besedinskaya rayonnaya veterinarnaya lechebnitsa, Kurskoy oblasti (for Taranenko). 2. Bo'sho-Sosnovskaya rayonnaya lechebnita, Permskoy oblasti (for Nikolayev). 3. Aleksandrovskiy veterinarnyy uchastok, Voznesenskogo rayona, Nikolayevskoy oblasti, Ukrainskoy SSR (for Mikhaylets, Artemenko, Moskalenko). 4. Kolkhoz "40 let Oktyabrya", Tarliyskogo rayona, Moldavskoy SSR (for Al'bertyan).

(Continued on next card)

LEBEDEV, M.M.; BONDARENKO, V.N.

Age and origin of metamorphic rocks in central Kamchatka.
Sov.geol. 5 no.11:98-105 N '62. (MIRA 15:12)

1. Kamchatskoye rayonnoye geologorazvedochnoye upravleniye.
(Kamchatka—Rocks, Crystalline and metamorphic)

BONDARENKO, V.N. [Bondarenko, V.M.]; ZHINDULIS, A.I. [Zhyndulis, A.I.]; LITOVCHENKO, V.G. [Lytovchenko, V.H.]; SNITKO, O.V.; FROLOV, O.S.

Effect of an external electric field on the work function of thin lead sulfide films. Ukr. fiz. zhur. 8 no.10:1110-1116 O '63. (MIRA 17:1)

1. Institut poluprovodnikov AN UkrSSR, Kiyev.

BONDARENKO, V.N.; LITVINOVA, E.M.; SNITKO, O.V.; TKHORIK, Yu.A.

Effect of thermal treatment and some coatings on the velocity of Si and Ge surface recombination. Radiotekh. i elektron. 9 no. 5 876-881 My '64. (MIRA 17:7)

1. Institut poluprovodnikov AN UkrSSR.

BONDARENKO, V.N.

Laboratory method of estimating the tendency of explosives to burn out. Vzryv. delo no.52/9:210-217 '63. (MIRA 17:12)

1. Makeyevskiy nauchno-issledovatel'skiy institut po bezopasnosti truda v gornoy promyshlennosti.

BONDARENKO, V.O., aspirant

The over-all use of new technology is an important condition for reducing the labor input in the operation of railroad transportation. Trudy MIIT no.142:5-27 '61. (MIRA 15:1)
(Railroads--Management)

BONDARENKO, V.O., aspirant

Measurement of labor productivity in connection with the use of various types of traction for transportation. Trudy MIIT no.136:51-57 '61. (MIRA 15:1)
(Railroads—Labor productivity)
(Work measurement)

ZHURAVEL', A. I., kand. ekonom. nauk; BONDARENKO, V. O., inzh.; POTAPOV, P. R.

Labor productivity and costs of operation of classification yards. Zhel. dor. transp. 45 no.1:20-24 Ja '63. (MIRA 16:4)

1. Glavnyy inzh. stantsii Inskaya (for Potapov).

(Railroads—Management)

BONDARENKO, V.O.; POLOVKO, V.M.

Pneumatic conveying of defecation and saturation residues. Khar.-prom. no.4:92 O-D '62. (MIRA 16:1)

(Pneumatic conveying)
(Sugar industry--Equipment and supplies)

ZHURAVEL', A.I., dotsent, kand.ekonom. nauk; BONDARENKO, V.O., inzh.

Methodology for determining labor productivity and the cost of operation of classification yards and section stations. Trudy NIIZHT no.33:76-107 '63. (MIRA 17:3)

BONDARENKO, V.O., inzh.

Measurement of labor productivity in railroad divisions. Trudy NIIZHT no.33:157-160 '63. (MIRA 17:3)

BONDARENKO, V.O., inzh.; KUPRIYANOV, A.P., inzh.

Economic efficiency of centralized traffic control on the Western Siberian Railroad. Trudy NIIZHT no.33:148-156 '63. (MIRA 17:3)

BEREZIN, A.K.; STUPAK, V.G.; BEREZINA, G.P.; BOLOTIN, L.I.; LYAPKALO, Yu.M.; SOLOPIKHIN, D.P.; BONDARENKO, V.P.

Powerful electron gun for work under difficult vacuum conditions. Prib. i tekh. eksp. 7 no.2:136-138 Mr-Ap '62. (MIRA 15:5)

1. Fiziko-tekhnicheskiy institut AN USSR.
(Electronic apparatus and appliances) (Vacuum apparatus)

1. BONDARENKO, V. P.; NADZHAFOVA, S. A.; T. P. STEPANOVA

2. USSR (600)

4. Brandy

7. Making brandy production's analysis technique more exact. Vin SSSR 12 no. 10; 1952.

9. Monthly List of Russian Accessions, Library of Congress, January, 1953. Unclassified.

9,2580

63895

SOV/144-59-12-13/21

AUTHORS: Mayevskiy, O.A., Candidate of Technical Sciences, Dotsent, Bondarenko, V.P., Assistant

TITLE: An Electro-Magnetic Peak Generator for Grid Control of Ionic Instruments

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Elektromekhanika, 1959, Nr 12, pp 118-126 (USSR)

ABSTRACT: Peak generators are used in modern rectifier grid-control systems to increase the accuracy of the control and the life of the valve. They convert the sinusoidal control voltage into impulses with a steep wave front of the order of 30 to 40 volts per electrical degree. The best impulse wave shape is shown in Fig 1b and is usually developed by a circuit of the type shown in Fig 1a. Here an insulating transformer supplied from a phase-rotator feeds a peak choke wound on a permalloy core with a marked knee in the magnetization curve. This article considers an electro-magnetic impulse generator which combines in one electro-magnetic apparatus the functions of insulating the transformer and the impulse-forming device and uses ordinary transformer steel instead of permalloy. A schematic circuit diagram of the peak generator is given

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An Electro-Magnetic Peak Generator for Grid Control of Ionic Instruments

in Fig 2a. It receives a sinusoidal voltage from a phase-rotating device and has a rectifier type DGTs across its secondary; a series limiting resistance is also used. The full equivalent circuit is given in Fig 2b. Analysis of operation of the device is best considered in two stages, first using the simplified circuit of Fig 2B which corresponds to passage of secondary current through the valve in the open direction. In this case the electro-magnetic processes in the peak generator are similar to those in a single-phase half-wave rectifier operating on a resistance-inductance load, the theory of which has been published elsewhere. The three graphs in Fig 2 represent: the primary voltage, the secondary voltage, the secondary emf and the grid current; and the secondary current which is resolved into steady state and "free" components. Neglecting the small grid current, the secondary current is determined from Eq (1). At the instant when the secondary current falls to zero, the back emf on the rectifier type DGTs increases suddenly forming the steep wave-front of the control signals. The

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angle governing the width of the impulse may be obtained by substituting in Eq (1) the appropriate boundary conditions when the secondary current is zero. The resultant Eq (2) may be used to determine the impulse-width angle as a function of the ratio of secondary reactance to resistance. The graphs used in Fig 2 can also serve to determine the various currents as functions of the ratio of secondary reactance to resistance. To determine the steepness of the wave front and the shape of the secondary voltage, the equivalent circuit of Fig 2 should be used. It corresponds to blocking of the valve type DGTs; Eq (9) is derived for the secondary voltage in this case. The effective value of the output voltage may then be determined from Eq (11). The theory given above was used to design an experimental impulse generator to control a rectifier type RM-200. The generator, sketched in Fig 3, was made of ordinary transformer steel of E-section and the principal dimensions are given. Fig 4a and 4b show calculated graphs of its output voltage for different values of limiting resistance.

An Electro-Magnetic Peak Generator for Grid Control of Ionic Instruments

Experimental curves derived from the oscillograms of Fig 5 are also included and indicate satisfactory agreement between theory and experiment. The differences that are observed arise from the appreciable magnetizing current of the primary winding resulting from saturation of the core by the d.c. component of the secondary current. Fig 5 shows oscillograms of primary voltage, output voltage and current through the valve of an experimental peak generator when the impulse width is 120° (Fig 5a) and 75° (Fig 5b). It will be seen that the wave shape is analogous to that obtained from conventional generators. By combining the functions of insulating transformer and the peak generator into a single device the construction is greatly simplified. The peak width and amplitude can easily be controlled and two signals displaced by 180° can be obtained if necessary. The peak generator is cheap and easy to make. The apparent output of 89 VA can be increased by a further 10 to 15 VA by using thinner laminations or by improving their insulation. A numerical example of the

An Electro-Magnetic Peak Generator for Grid Control of Ionic Instruments

design of a peak generator is given in an appendix. There are 5 figures, 1 table and 5 Soviet references.

ASSOCIATION: Khar'kovskiy politekhnicheskiy institut (Khar'kov Polytechnical Institute)

SUBMITTED: October 2, 1959

Card 5/5

MAYEVSKIY, O.A.; BONDARENKO, V.P.

Apparent power and the power coefficient of uncontrolled three-phase current rectifiers with nonsymmetric anode voltages. Trudy KhPI 30 no.1:137-150 '60. (MIRA 14:9)
(Electric current rectifiers)

BONDARENKO, V.P., inzh.

Commutational processes in the operation of a three-phase bridge-type rectifier with nonsymmetrical plate voltage. Izv.vys.ucheb.zav.; energ. 4 no.9:32-39 S '61. (MIRA 14:10)

1. Khar'kovskiy politekhnicheskiy institut imeni V.I.Lenina. Predstavlena kafedroy elektrifikatsii promyshlennykh predpriyatiy.
(Electric current rectifiers)

BONDARENKO, V.P.

S/120/62/000/002/031/047
E140/E163

AUTHORS: Berezin, A.K., Stupak, V.G., Berezina, G.P., ~~Bolotin, L.I.,~~ Lyapkalo, Yu.M., Solopikhin, D.P., and Bondarenko, V.P.

TITLE: High power electron gun for operation under difficult vacuum conditions

PERIODICAL: Pribory i tekhnika eksperimenta, no.2, 1962, 136-138.

TEXT: An electron gun is described giving 20 A at 25 kV in a vacuum of 5×10^{-5} mm Hg. The cathode is a cylindrical tablet of lanthanum hexaboride, vacuum-sintered, and located in the homogeneous region of the focussing magnetic field. A grid-form anode is used, resulting in a smaller defocusing field than the more usual pierced disc (Fig.1). The transparency of such an anode is also satisfactory. The anode mesh is of tungsten wire 60 μ diameter with a pitch of 1.5 mm. In plasma interaction experiments the gun was used for several months under continuous evacuation without replacement of any of its parts. There are 4 figures.

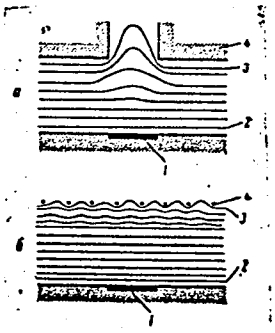
Card 1/2

3

High power electron gun for ... S/120/62/000/002/031/047
E140/E163

ASSOCIATION: Fiziko-tekhnicheskiy institut AN USSR
(Physicotechnical Institute, AS Ukr.SSR)
SUBMITTED: July 26, 1961

Fig.1



Card 2/2

EWT(d)/EWT(m)/EWP(t)/ETI IJP(c) JD/JG

ACC NR: AP6032291 (A) SOURCE CODE: UR/0226/66/000/009/0043/0049

AUTHOR: Bondarenko, V. P.; Bilyk, I. I.; Shlyuko, V. Ya.

ORG: Kiev Order of Lenin Polytechnic Institute (Kiyevskiy ordena Lenina politekhnicheskiy institut)

TITLE: Investigation of conditions of alloy preparation in the system yttrium boride—lanthanum boride

SOURCE: Poroshkovaya metallurgiya, no. 9, 1966, 43-49

TOPIC TAGS: boron, solid solution, crystallization, alloy, yttrium, lanthanum, yttrium boride, lanthanum boride, hexaboride

ABSTRACT: A study has been made to investigate the effect of temperature and duration of sintering on the process of alloy preparation in the YB_6—LaB_6 system during combined reduction of oxides by boron in vacuum. It was found that the preparation of homogeneous solid solutions of hexaborides is possible with the presence in the charge of the appropriate metal instead of one of the oxides of hexaboride. It is suggested that the main accelerating factor is the formation of a

Card 1/2

ACC NR: AP6032297

close contact between the hexaboride particles owing to their combined crystallization. Orig. art. has: 5 figures and 7 formulas. [Based on authors' abstract]

SUB CODE: 11/ SUBM DATE: 25May65/ ORIG REF: 006/ OTH REF: 002/

Card 2/2

ACC NR: AP7003024 SOURCE CODE: UR/0109/66/011/005/0954/0958

AUTHOR: Proklov, V. V. Kreynin, O. L; Morozov, A. I.; Bondarenko, V. S.

ORG: none

TITLE: Ultrasonic convertiers based on the CdS depletion layer /This paper presented at All-union conference on new directions of research in the field of absorption, reinforcement, generation and reception of sonic and ultrasonic vibrations in solid bodies and utilization of these effects in acoustics and radiotechnology held in Moscow from 22 to 23 June 1965/

SOURCE: Radiotekhnika i elektronika, v. 11, no. 5, 1966, 954-958

TOPIC TAGS: thin film circuit, frequency characteristic

ABSTRACT: In an investigation of cadmium sulphide ultrasonic transducers with depletion layers, analysis was made of the effect of transducer geometry and resistivity on the smoothness of the amplitude-frequency characteristic, the insertion loss, and the bandwidth.

N-type single-crystal thin CdS films with a normal resistivity of 0.5—2 ohm·cm were used. MV—000 copper was vacuum deposited (10^{-5} mm Hg) on the working surface. The copper was allowed to

 UDC: 534.232.45-8

diffuse into the surface of the CdS films under a constant temperature of 400° C. The diffusion time was changed in the range from 2 to 30 minutes, depending on the required transducer center frequency (5—100 Mc).

The test setup consisted of a pulse generator modulating an rf source with 1—10 μsec pulses. The rf signal was applied to 1) an attenuator in tandem with an hf amplifier, detector, and oscilloscope, and 2) an LC impedance matching unit followed by the CdS transducer being tested and the associated delay medium. The scope display in each case consisted of two pulses: 1) an input pulse to the CdS transducer, and 2) a pulse which was converted to an ultrasonic signal delayed and reflected in the delay medium (fused quartz glass 8 cm long), and converted back to electrical rf energy. The distance between two consecutive pulses was equal to the round-trip delay through the medium, and the height of two pulses supplied information on transducer losses.

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206220013-5"

ACC NR: AP7003024

The figure shows test results of typical transducers: one with crystal faces parallel to each other, the other with one side slanted. In the first (curve 1), a 6 x 6 x 1.5 mm transducer was tested in

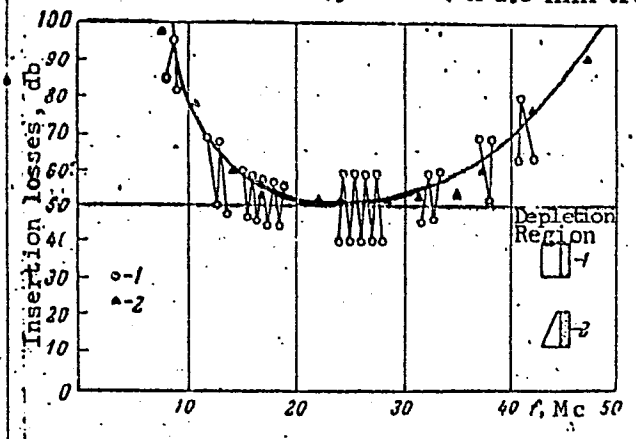


Fig. 1. Amplitude-frequency characteristics of a transverse mode CdS-25 transducer, thickness d = 0.15 cm

1 - Parallel working faces; 2 - slanted working faces.

the transverse mode at a fundamental frequency of 26 Mc. The ripple, whose period was 580 kc, corresponded to the ultrasonic wave round-trip transit time through the CdS material. Curve 2 was smooth but

Card 3/5

had a minimum insertion loss 12 db greater than in the first case. This curve was obtained by slanting one surface of the CdS material or by utilizing a fully absorbing matched load for the transducer.

To investigate the effect of base material resistivity on the transducer operation, longitudinal mode transducers with 10^{-3} ohm-cm material were tested. The amplitude-frequency plot of such a transducer (parallelepiped shaped) exhibited a 5 Mc period ripple (2.5 Mc had been expected). This is explained by the fact that the whole crystal acts as a half-wave ultrasonic converter (its thickness in this case was 0.87 mm). The minimum insertion loss was 26 db at 23 Mc. The use of matched absorbing loads did not alleviate the situation.

The table, which shows representative test results of CdS transducers with depletion layers, indicates that ultrasonic delay lines with considerable bandwidth and insertion losses of the order of 50 db are realizable. Trade-off between bandwidth and insertion loss is possible

ACC NR: AP7003024

Table 1. Test results for CdS transducers with depleted layers

Mode	Electromechanical coupling constant	Ratio between acoustic resistivity of transducer and delay medium	Fundamental transducer frequency, Mc	Band-pass, %	Total losses in double conversion and propagation through fused quartz glass 8 cm long db
Transverse	0.188	1.005	16	40	53
			38	53	65
			75	15	50
			25	12*	34*
Longitudinal	0.262	1.64	22.8	34	53
			40	30	45

* Data when fixed narrowband tuning was utilized.

The authors thank S. G. Kalashnikov for his interest in this work.

Orig. art. has: 4 figures and 1 table. [FSB: v. 2, no. 7]

SUB CODE: 09 / SUBM DATE: 19Jul65 / ORIG REF: 001 / OTH REF: 008

Card 5/5

SOV/124-58-11-12545

Translation from: Referativnyy zhurnal, Mekhanika, 1958, Nr 11, p 85 (USSR)

AUTHOR: Bondarenko, V.S.

TITLE: Forms of a Body of Revolution Consisting of a Small Quantity of Liquid (Formy tela vrashcheniya, obrazovannogo malym kolichestvom zhidkosti)

PERIODICAL: Tr. Leningr. tekstil'n. in-ta, 1957, Nr 9, pp 314-318

ABSTRACT: A theoretical study of the form of equilibrium assumed by a liquid with consideration of the forces exerted by surface tension, wherein the forces of gravity are balanced either by hydrostatic pressure or by liquid-solid friction forces and adhesion forces. Consideration is given to a drop on a vertical filament which is at rest within two liquids. By setting up the conditions of static equilibrium of the liquid the author obtains a differential equation, the integration of which for the most general set of boundary conditions permits establishment of the equation of the body of revolution

$$Z = aE(k, \phi) + bF(k, \phi)$$

Card 1/2

Forms of a Body of Revolution Consisting of a Small Quantity of Liquid

where $F(d, \phi)$, $E(k, \phi)$ are elliptical integrals of the first and second kind and a and b are constants. When $a>0$ and $b>0$, the surface becomes an unduloid, whereas when $a>0$ and $b<0$, it is a nodoid. The limiting forms of the unduloid are the sphere and the catenoid. The following special cases of surfaces are examined: 1) a drop on a vertical filament surrounded by a continuous homogeneous medium; 2) complete wetting by the liquid of the filament surface, when the meridian consists of a catenary segment (i.e., a catenoid meridian). It is pointed out that the equation obtained for a surface of revolution can be used for the measurement of the edge angles along a three-phase boundary, starting from the dimensions of a photographic image of the form of equilibrium of the liquid under study. A graph is adduced to facilitate the use of the equation on the analysis of such a photograph.

Yu. F. Dityakin

DAVYDOV, Boris Ivanovich; ROGINSKIY, Boris Yakovlevich; BONDARENKO, V.S., red.; RODIN, Ye.D., red.; MORALEVICH, O.D., red. izd-va; TIKHONOVA, Ye.A., tekhn. red.

[Linear programming in the economics and operation of the merchant marine] Primenenie lineinogo programmirovaniia v ekonomike i ekspluatatsii morskogo transporta. Moskva, Izd-vo "Morskoi transport," 1963. 94 p. (MIRA 17:2)

BONDARENKO, V.S., inzh.

Operation of specialized container ships in the United States. Biul. tekh.-ekon. inform. tekh. upr. Min. mor. flota 7 no.12: 65-77 '62. (MIRA 16:11)

S/070/61/006/003/002/009
E021/E435

24.7100 (1160, 1136, 1142)

AUTHORS: Venevtsev, Yu.N., Bondarenko, V.S., Zhdanov, G.S., Chkalova, V.V. and Stember, N.G.

TITLE: Anomalous changes in the lattice parameters, the dielectric and piezoelectric properties of (Ba, Pb)TiO_3 solid solutions

PERIODICAL: Kristallografiya, 1961, Vol.6, No.3, pp.375-380

TEXT: Samples were prepared from chemically pure titanium dioxide and barium and lead carbonates. X-ray investigations showed that solid solutions of (Ba, Pb)TiO_3 had a tetragonal-distorted cell of the perovskite type. Results of precision measurements on the parameter of the cell are given in Fig.1, where changes in lattice parameters and volume are plotted against weight % $PbTiO_3$. The curves are not continuous and there are sharp changes at 5.5, 9.2, 11.2 and 13.5% $PbTiO_3$. Fig.1a shows the periods of the crystal lattice c and a; Fig.1б shows c/a; Fig.1в shows the volume v of the elementary cell against weight % $PbTiO_3$. The results of measurements of the dielectric constant ε against temperature (°C) are shown in Fig.2 (the numbers on the curves correspond to the % $PbTiO_3$). The values of

Anomalous changes ...

the dielectric constant at the Curie point ε_{max} are plotted against concentration (wt.%) $PbTiO_3$ in Fig.3. There are sharp maxima at 5.5, 9.2, 11 and 13.7% $PbTiO_3$. The curves in Fig.2 enable the Curie point and the positions of the second and third phase transformations to be found. On the basis of these measurements, the phase diagram at the $BaTiO_3$ rich end can be drawn (Fig.4). The change in the piezo-modulus d_{33} with composition is shown in Fig.5. There are maxima at 5.5, 11.2 and 13.5 wt.% $PbTiO_3$. The obtained data agree in many respects with those of previous work when commercially pure materials were used. The results, as well as published data, lead to the conclusion that the observed anomalies are characteristic of the solid solutions of $(Ba, Pb)TiO_3$ and they may be due to the differences in the properties of the barium and lead titanates. A change in the type of ferroelectrically active cations probably takes place in the concentration range of 11.2 to 1.35 wt.% $PbTiO_3$ when the second and the third phase transitions, which are characteristic for barium titanate, ceased to exist. Other observed anomalies are also attributed to the differences in the properties of the titanates of barium and lead. Acknowledgments are expressed to Senior

laboratory assistant B.G.Nikolov, Technician I.I.Moreva, Engineer V.A.Ulitin and Laboratory assistant G.V.Bazhanova for their assistance. There are 5 figures and 9 references: 4 Soviet-bloc and 5 non-Soviet-bloc. The three references to English language publications read as follows: H.D.Megaw, Proc. Phys.Soc., 58, 133, 1946; G.Shirane, F.Jona, R.Pepinsky, Proc.IRE, 43, 12, 1738, 1955; B.Joffe, R.S.Roth, S.Marzullo, J.Res.Nat.Bur. Standards, 55, 5, 239-254, 1955.

ASSOCIATION: Fiziko-khimicheskiy institut im. L.Ya.Karpova (Institute of Physics and Chemistry imeni L.Ya.Karpov)

SUBMITTED: August 24, 1960

BONDARENKO, V.S.

Formation of drops on thin filaments covered with a cylindrical liquid layer. Zhur.fiz.khim. 35 no.12:2775-2777 D '61. (MIRA 14:12)

1. Leningradskiy tekstil'nyy institut imeni S.M. Kirova.
(Drops) (Capillarity)

BONDARENKO, V.S., inzh.

Improve the inspection of boiler units. Bezop. truda v prom. 2 no.9:17-19 S '58. (MIRA 11:9)
(Boiler inspection)

VISHNEPOL'SKIY, S.A., kand. ekon. nauk; BAYEV, S.M., inzh. putey soobshcheniya; BONDARENKO, V.S.; RODIN, Ye.D.; CHUVLEV, V.P.; TURETSKIY, L.S.; SMIRNOV, G.S.; SHAPIROVSKIY, D.B.; OBERMEYSTER, A.M.; SINITSIN, M.T.; KOGAN, N.D.; PETRUCHIK, V.A.; GRUNIN, A.G.; KOLESNIKOV, V.G.; MARTIROSOV, A.Ye.; KROTKIY, I.B.[deceased]; ZENEVICH, G.B.; MEZENTSEV, G.A.; KOLOMOYTSEV, V.P., kand. tekhn. nauk; ZAMAKHOVSKAYA, A.G., kand. tekhn. nauk; MAKAL'SKIY, I.I., kand. ekon. nauk; MITROFANOV, V.F., kand. ekon. nauk; CHILIKIN, Ya.A.; BAKAYEV, V.G., doktor tekhn. nauk, red. Prinimali uchastiye: DZHAVAD, Yu.Kh., red.; GUBERMAN, R.L., kand. ekon. nauk, red.; RYABCHIKOV, P.A., red.; YAVLENSKIY, S.D., red.; BAYRASHEVSKIY, A.M., kand. tekhn. nauk, red.; POLYUSHKIN, V.A., red.; BALANDIN, G.I., red.; ZOTOV, D.K., red.; RYZHOV, V.Ye., red.; BOL'SHAKOV, A.N., red.; VUL'FSON, M.S., kand. ekon. nauk, red.; DMITRIYEV, V.I., kand. ekon. nauk, red.; ALEKSANDROV, L.A., red.; LAVRENOVA, N.B., tekhn. red.

[Transportation in the U.S.S.R.; marine transportation] Transport SSSR; morskoi transport. Moskva, Izd-vo "Morskoi transport," 1961. 759 p. (MIRA 15:2)

(Merchant marine)

BONDARENKO, V.S.

Effect of the heteroporosity of capillary systems on electroosmotic transport of liquids. Elektrokhimiia 1 no.11:1381-1384 N '65. (MIRA 18:11)

1. Leningradskiy institut tekstil'noy i legkoy promyshlennosti imeni Kirova.

BONDARENKO, V.S., inzh.

Safety valve for low-pressure steam boilers. Energetik 9 no.10:14-15 O '61. (MIRA 14:10)
(Boilers--Safety appliances)

BONDARENKO, V.S. [deceased]

Water-oil emulsions instead of drying oils. Transp. stroi. 15 no.9:29-30 S '65. (MIRA 18:11)

1. Instruktor Chelyabinskoy nauchno-issledovatel'skoy stantsii TSentral'nogo instituta normativnykh issledovaniy i nauchno-tekhnicheskoy informatsii v transportnom stroitel'stve.

VENEVTSEV, Yu. N.; ZHDANOV, G. S.; ROGINSKAYA, Yu. Ye.; FEDULOV, S. A.; IVANOVA, V. V.; CHKALOVA, V. V.; VISKOV, A. S.; KAPYSHEV, A. G. BONDARENKO, V. S.; LADYZHINSKIY, P. B.

Some solid solutions on the basis of the ferroelectric-antiferromagnetic $BiFeO_3$. Izv. AN SSSR. Ser. fiz. 28 no. 4: 683-690 Ap '64. (MIRA 17:5)

DAVYDOV, Boris Ivanovich; ROGINSKIY, Boris Yakovlevich; BONDARENKO, V.S., red.; RODIN, Ye.D., red.; MORALEVICH, O.D., red.izd-va; TIKHONOVA, Ye.A., tekhn. red.

[Using linear programming in the economics and operation of the merchant marine] Primenenie lineinogo programmirovaniia v ekonomike i ekspluatatsii morskogo transporta. Moskva, Izd-vo "Morskoi transport," 1963. 94 p. (MIRA 16:11)

(Merchant marine--Cost of operation)
(Linear programming)

POPOV, I. N.; NIKOLAYEV, S. V.; BONDARENKO, V. S.

Physicomechanical properties and breakage of rocks during forcing through by blasting with shaped charges. Izv. vys. ucheb. zav.p geol. i razv. 5 no.10:130-139 O '62.
(MIRA 16:1)

1. Moskovskiy geologorazvedochnyy institut imeni Ordzhonikidze.

(Rocks—Testing) (Blasting)

BONDARENKO, V.S.

Measurement of the viscosity of a small amount of liquid.
Zhur. fiz. khim. 38 no.5:1273-1275 My '64. (MIRA 18:12)

1. Leningradskiy tekstil'nyy institut imeni Kirova.
Submitted Jan. 14, 1963.

BONDARENKO, V.S.; ANDROSOV, V.F.; KARSLIYEVA, V.I.

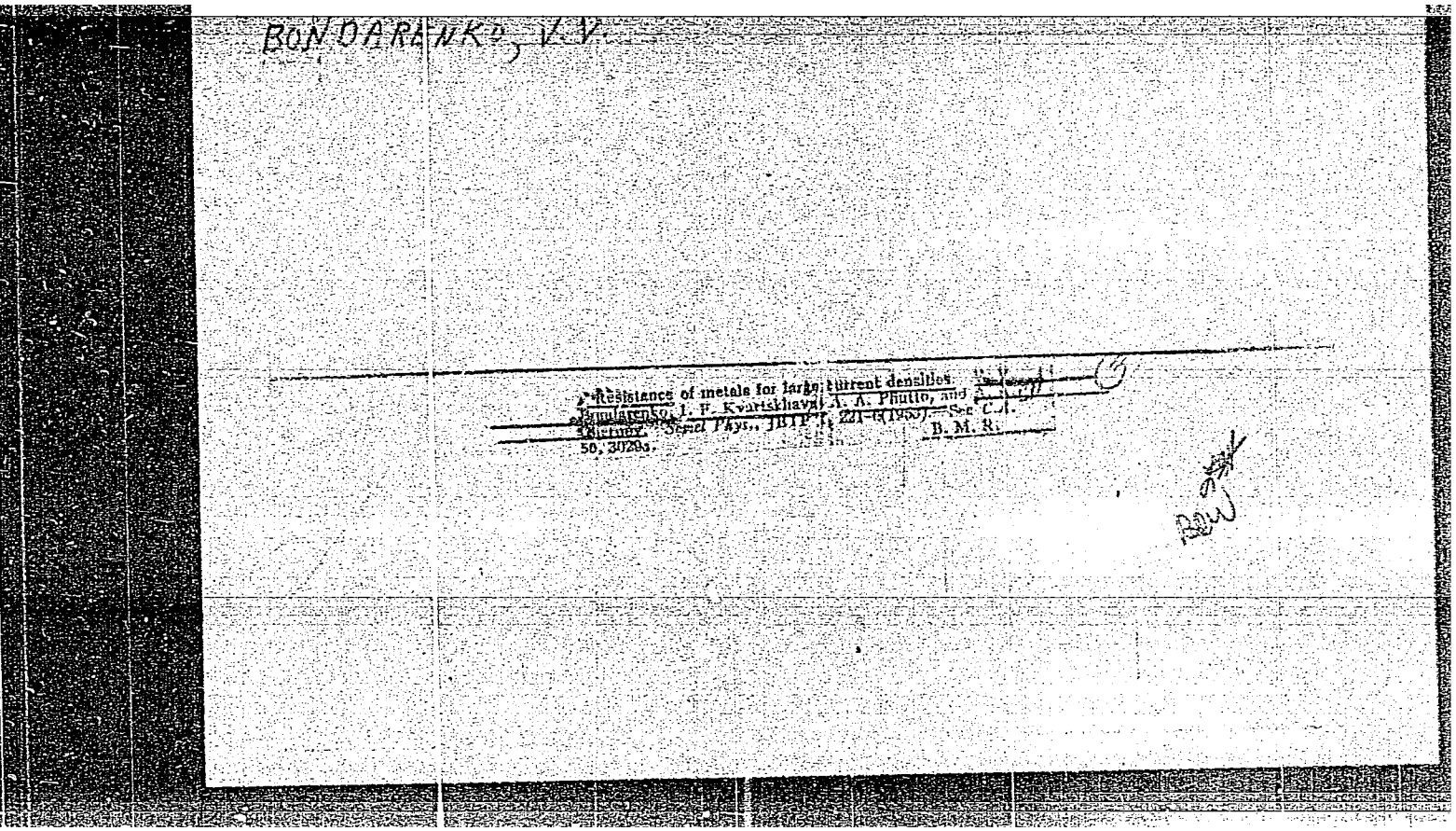
Effect of the position of the meniscus of a liquid in a reading capillary on the result of measuring the Zeta potential of capillary systems by the electroosmosis method. Zhur. fiz. khim. 39 no.4:1032-1034 Ap '65. (MIRA 19:1)

1. Leningradskiy institut tekstil'noy i legkoy promyshlennosti. Submitted May 19, 1964.

KONSTANTINOV, [illegible] V.; ORLOV, Yu. V.; BONDARENKO, V. V.

"Physical start-up of the reactor at the Beloyarsk Atomic Power Station named after I. V. Kurchatov."

report submitted for 3rd Intl Conf, Peaceful Uses of Atomic Energy, Geneva, 31 Aug-9 Sep 64.



BONDARENKO, V.V.

"Resistance of metals for large current densities." V. V. Bondarenko, I. F. Kvartskhava, A. A. Phutto, and [illegible]. Zhur. Eksper. i Teoret. Fiziki, 1951, 21, 221-6(1951). See C.A. 50, 3029h. B. M. R.

BONDARENKO, V. V.

USSR/Physics - Resistance

FD-1822

Card 1/1 Pub 146-7/25

Author : Bondarenko, V. V.; Kvartskhava, I. F.; Plyutto, A. A.; Chernov, A. A.

Title : Resistance of metals in the case of large current densities

Periodical : Zhur. eksp. i teor. fiz. 28, 191-198, February 1955

Abstract : The authors present the results of an investigation into the dependence of the resistance of certain metals upon current density. They compare the experimental curves representing the dependence of the resistance of copper, silver, platinum, etc. upon the magnitude of the energy introduced with the curves computed from tabular data. They establish that for these metals Ohm's law holds up to current densities of about 10^7 amperes per square centimeter. Seven references; e.g. Ye. S. Borovik, DAN SSSR, 91, 771, 1953.

Institution: --

Submitted : February 16, 1954

Electric explosion of metallic wires. I. F. Kvartskhava, A. A. Plyutto, A. A. Chernov, and V. V. Bondarenko, *Zhur. Eksptl. i Teoret. Fiz.* 30, 42-53 (1956).—Quant. balance of energy in elec. explosions of wires 0.10 mm. in diam. and 15 cm. long in air, vacuum, water, and solid insulators was investigated by current and voltage oscillography and by simultaneous shadow photography. With wires embedded in solid or liquid medium the temp. range of 100,000–150,000°K. is reached. In K (in glass capillary), Cu, and W wires within several microsec. during the process of explosion, the wire receives the initial impulse of the discharge, and the current begins to decrease, $dI/dt < 0$; this causes an overvoltage in the wire. At the end of the first impulse the current and dI/dt approach zero; this results in a "current pause," lasting up to several hundred microsec. A second impulse is characterized by much greater current and lower voltage than those of the first impulse; this indicates an arc discharge. The oscillograms of Al, Ag, and Au wires are similar to that of Cu wire; those of W, Mo, Fe, Ni, and Ni-Cr are similar to that of Pt wire, characterized by the region of the first impulse. Expts. with wires embedded in poly(methyl methacrylate) and submerged in water showed that shape and magnitude of the first impulse are independent of the surrounding medium. —A. P. Kotloby

BONDARENKO, V.V.

SUBJECT USSR / PHYSICS CARD 1 / 2 PA - 1768
AUTHOR KVARCCHAVA,I.F., BONDARENKO,V.V., MELADZE,R.D., SULADZE,K.V.
TITLE The Electric Explosion of Wires in the Vacuum.
PERIODICAL Žurn.eksp.i teor.fis,31, fasc.5,737-744 (1956)
Issued: 1 / 1957

The present work contains a report on the results obtained by tests concerning the explosion of wires in a vacuum of $\sim 10^{-5}$ mm column of water in a sufficiently large chamber. A further reduction of pressure exercised no influence on the observed phenomena.

Test methods and results: For the electric scheme of the test order see V.V.BONDARENKO et al. Žurn.eksp.i teor.fis,28, 191 (1955).The section through a chamber is described by a drawing. Tests were carried out mainly with copper wires. The entire capacity of the condenser pile was 4 μ F and the inductivity of the circuit of the explosion was 1,2 microhenry. For the investigation of the condensation of the condensed products the wire was surrounded by a coaxial aluminium screen. The entire explosion was photographed in the light of the discharge itself in a position vertical to the axis of the wire; the photographs obtained are attached. The condensed product has a stripe-like structure and height along the entire length of the screen. The stripes are vertical to the wire and the height of the condensed substance is nearly equal to the length of the wire. This points in the direction of a radial distribution of the vapors of the wire. The height of the condensed substance has two unequal maxima and two minima. The products of the electric explosion extend, indepen-

dent of the original shape of the wire, vertical to every point of the surface. With respect to the direction of the extension of the products of the explosion this reminds us of the ordinary explosion of very elongated charges. Under the conditions investigated only the front of the vapor flow moves in the high vacuum, whereas the remaining parts of the flow move in a deteriorated vacuum. Nevertheless, the condensation products remain within strict limits and give a clear illustration of the strata-like structure of the vapor flows. This is possible only in the case of high radial velocities of the vapor flows. These velocities amounted to $\sim 2.10^5$ cm/sec on the occasion of the tests under investigation. If the diameter of the wire is reduced, the radial dimensions of the luminescent channels are reduced as well. According to the authors' opinion, the luminescent channels are caused mainly by the radial motion of the vapors of the wire in the strong magnetic field of the current. The channels are produced and exist only within the first half-period of amperage. Further details are discussed. The causes of the phenomena described are discussed, but at present they are still only a rough approximated description of reality.

INSTITUTION:

SUBJECT USSR / PHYSICS
AUTHOR KVARCCHAVA,I.F., BONDARENKO,V.V., PLJUTTO,A.A., ČERNOV,A.A.
TITLE The Oscillographic Determination of the Energy of the Electric Explosion of Wires.
PERIODICAL Žurn.eksp.i teor.fis,31,fasc.5, 745-751 (1956)
Issued: 1 / 1957

These oscillographic investigations took place within a relatively wide range of voltages on the condenser of the explosion circuit. By means of a "current resistance" (V.V.BONDARENKO et al., Zurn.eksp.i teor.fis,28, 191 (1955)) amperage oscillograms were obtained which are free from all inductive distortions. The energy introduced into the wire was computed solely on the basis of the amperage oscillogram, the known initial voltage on the condenser, the capacity of the condenser, and the inductivity of the induction circle. The electric explosion was caused by means of a discharge by the wire passing through a high tension condenser. The wiring diagram and the method of the experiment is described by the above cited work. Above all, copper wires were investigated because here the basic features of the electric explosion were the most distinct. These wires were 60 mm long and had diameters of 0,05; 0,1 and 0,15 mm. The capacity of the condenser battery amounted to 2,5 μ F, the initial voltage was from 5 to 40 kV, and inductivity 0,4 and 4,2 microhenry.
If the initial voltage U_0 is increased or if L is diminished, the first current pulse which causes the electric explosion of the wire, becomes shorter

Zurn.eksp.i teor.fis,31,fasc.5,745-751 (1956) CARD 2 / 2 PA - 1871

and higher. In the case of relatively low values of U_o a "discharge pause" occurs after the first current pulse in the explosion circuit, which is often ended by a second , mostly stronger, current pulse. In the case of high values of U_o this discharge pause does not occur, and amperage, after passing through a minimum that differs somewhat from zero, again begins to grow. From two amperage oscillograms it follows that the inductive and Ohm-voltage drop are of the same order. The energy E(t) introduced during the time t (calculated from the beginning of the discharge) into the wire amounts to: $E(t) = (C/2)\left[U_o^2 - (U_o - \Delta U)^2\right] - U_o \Delta Q - \Delta Q^2/2C$. Here ΔU denotes the reduction of the initial voltage U_o during the time t and $\Delta Q = C \Delta U$ - the charge leaving the condenser during the same period. In the case of relatively low voltages on the condenser the electric explosion shows no anomalies whatever in the connection between the introduced energy and resistance of the wire. However, in the case of high voltages on the condenser the resistance of the wire no longer depends univocally on the energy liberated in the wire. This may be explained by the discharge of energy from the wire in the course of the explosion. The contracting effect of the magnetic field of the current limits the attainable values of current density particularly in the case of thin wires.

INSTITUTION:

SOV/81-59-16-56920

Translation from: Referativnyy zhurnal. Khimiya, 1959, Nr 16, p 136 (USSR)

AUTHORS: Belokrinitskaya, Ye.Ye., Bondarenko, V.V., Vitushkina, I.N., Gerasimova, M.S., Ginzburg, V.L., Gramenitskiy, I.N., Livshits, D.M., Kryzhnaya, V.F.

TITLE: The Spectral Analysis of Cobalt for Metallic Impurities With the Use of Cast Electrodes

PERIODICAL: V sb.: Materialy 1-go Ural'skogo soveshchaniya po spktroskopii, 1956. Sverdlovsk, Metallurgizdat, 1958, pp 59-61

ABSTRACT: The samples are cast into chill molds in the forms of rods of 7 mm in diameter and 40 mm long. The butts of the rods are filed to a plane and treated by a HCl solution (1 : 1) for cleaning from Fe. The spectra are excited in an a-c arc with an upper carbon electrode and photographed with an average quartz spectrograph. The standards are prepared on the basis of pure cobalt, in which the concentration of admixtures is determined chemically. Ni, Fe, Si, Mn, Al, Cu, As and Sb can be determined with a mean error of 5 - 15%.

G. Kibisov.

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24(3)

AUTHORS: Kvartskhava, I. F., Bondarenko, V. V., Meladze, R. D., Suladze, K. V.

SOV/56-35-4-12/52

TITLE: Electric Explosion of Spiral Wires in Vacuum (Elektricheskiy vzryv spiral'nykh provolok v vakuume)

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1958, Vol 35, Nr 4, pp 911-916 (USSR)

ABSTRACT: In two earlier papers the authors already investigated electric wire explosions in a vacuum (Refs 1, 2). The investigation of the phenomena of luminescence accompanying the explosion was carried out photographically; the experimental scheme used has already been described (Ref 2). For the wire explosion a battery condenser with a capacity of 4.8 μF and a working voltage of 50 kV was used. In the present paper only the results of investigations are given, while as to the investigations themselves references 1 and 2 are mentioned. Results are discussed on the basis of the reproduced photographs. Figure 1 shows 2 photos of explosions of cylindrical copper wire spirals and 2 of sinusoidally curved wires. Figure 2 shows the photo-

graph of an explosion on a copper wire ring, of an explosion on a straight Cu-Al wire, and one of mirror scanning. All data concerning these photographs are given. It was found that, in the case of wire explosions in a vacuum, also glow effects are observed besides the phenomenon of the current tubes. This phenomenon is a consequence of the motion of explosion products through the magnetic field of the current (during the discharge an additional electric field $\vec{E} = \frac{1}{c}\left[\vec{v} \times \vec{H}\right]$ is formed, where $\vec{v}$ denotes the velocity of the explosion products in the $\vec{H}$-field, and c the velocity of light in the vacuum); the former effect is considered to be a consequence of reciprocal interaction among the currents of the explosion products. The velocity of the explosion front is determined by scanning the explosion with a mirror as amounting to 10^6 cm/sec. It is also found that during the very short time of the explosion, thermal insulation of the plasma is possible by means of a strong magnetic field. In conclusion, the authors endeavor to give a

qualitative explanation of the phenomena observed.
There are 3 figures and 8 Soviet references.

SUBMITTED: May 10, 1958

KOSONOGOV, L.F. (Voronezh, ul. Plekhanovskaya, d.19, kv.42);
BONDARENKO, V.V. (Voronezh)

Case of spontaneous recurarization following administration of relaxants of the nondepolarizing type. Grud. khir. 5 no.5: 97-98 S-O '63. (MIRA 17:8)

BONDARENKO, VIKTOR VIKTOROVICH

Razvitiye Obshchestvennogo Khozyaystva Kolkhozov Ukrainy V Gody Dovoyennykh Pyatiletok. Kiyev, Izd-Vo. Anussr, 1957.

444 p. Tables 23 cm.

At head of Title: Akademiya Nauk. Ukrainskoy SSr. Institut Ekonomiki.

BONDARENKO, V. V.

V. V. Bondarenko, D. F. Virnyk, I. N. Romanenko, M. N. Seredenko and V.P. Teplitskiy, all of the Institute of Economics, Ukrainian SSR Academy of Sciences.

"Essays on the Development of the National Economy of the Ukrainian SSR," (book).

SO: Pravda Ukrainy, 25 Nov 54

BONDARENKO, Viktor Viktorobich; VIRNYK, D.F., kandidat ekonomicheskikh nauk, otvetstvennyy redaktor; KOBZAR', G.A., redaktor; ZHUKOVSKIY, A.D., tekhredaktor.

[Growth of the communal economy of Ukrainian collective farms during the prewar five-year plans] Razvitie obshchestvennogo khoziaistva kolkhozov Ukrainy v gody dovoennykh piatiletok. Kiev, Izd-vo Akad. nauk USSR, 1957. 441 p. (MLRA 10:5)
(Ukraine--Collective farms)

BONDARENKO, V.V. doktor ekon. nauk, otv. red.; KOBA, M.F., red.; LISOVETS', O.M. [Lysovets', O.M.], tekhn. red.

[Problems of labor productivity statistics in industry and agriculture] Pytannia statystyky produktyvnosti pratsi v promyslovosti i sil's'komu hospodarstvi. Vyd-vo AN URSR, 1962. 302 p. (MIRA 16:2)

1. Akademiya nauk URSR, Kiev. Instytut ekonomiky. 2. Zaveduyushchiy otdelom statistiki Instituta ekonomiki Akademii nauk Ukr.SSR (for Bondarenko).

(Productivity accounting)

BONDARENKO, V.V.; KOTLYAREVSKIY, V.V.

Knife for cutting slots in paperboard [Suggestion by V.V. Bondarenko, V.V. Kotliarevskii]. Rats. i izobr. predl. v stroi. no.6:66-67 '58. (MIRA 11:10)

(Paperboard)

RADUSHKEVICH, V.P., prof.; KOSONOGOV, L.F.; BONDARENKO, V.V.; VASHANTSEV, A.A.; SLIVKIN, A.V.; STARYKH, V.S.

Use of new Soviet ganglionic blocking preparations in surgical practice. Khirurgiia 39 no.7:13-19 Jl '63 (MIRA 16:12)

1. Iz kafedry gospital'noy khirurgii (zav. - prof. V.P.Radushkevich) Voronezhskogo meditsinskogo instituta.

KOSONOGOV, L.F.; VASHANTSEV, A.A.; KLEYNER, G.A.; [illegible], V.V.

Use of ganglerone in clinical surgery. Sov. med. 27 no.2:128-130 F '64. (MIRA 17:10)

1. Kafedra gospital'noy khirurgii (zav. - prof. V.P. Radushkevich) Voronezhskogo meditsinskogo instituta.

L 60266-65 EPF(c)/EWP(j)/EWA(c)/EWT(m) Pc-4/Pr-4 RPL JAJ/EM
ACCESSION NR: AP5018600 UR/0079/65/035/007/1243/1246
547.553.1 : 543.426

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B

AUTHOR: Pereyaslova, D. G.; Bondarenko, V. Ye.; Krasovitskiy, B. M.

TITLE: Influence of conjugation on optical properties of alkaline solutions of N,N'-di'(2,3-oxynaphthoyl) derivatives of certain aromatic diamines

SOURCE: Zhurnal obshchey khimii, v. 35, no. 7, 1965, 1243-1246

TOPIC TAGS: conjugation, aromatic, diamine, N,N'-di-(2,3-oxynaphthoyl) derivative

ABSTRACT: Optical properties of N,N'-di-(2,3-oxynaphthoyl) derivatives of meta- and para- phenylenediamine, benzidine, and 2,2'- and 3,3'-disubstituted benzidine derivatives were investigated by UV- spectroscopy. For comparison UV- spectra of an anilide and ortho-aniside of 2,3-oxynaphthoic acid were taken. Absorption and fluorescence maxima (in mμ) were measured in a 5% NaOH solution. Absorption and fluorescence spectra of anilide of 2,3-oxynaphthoic acid and of N,N'-di-(2,3-oxynaphthoyl)-benzidine are shown in fig. 1 of the Enclosure. Out of the three bands only the middle one (~320 mμ) is affected by conjugation within the molecule. Doubling of the molecule of anilide of 2,3-oxynaphthoic acid results in a bathochromal

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Intensification of the middle absorption band. A decline in conjugation between the amide groups of the di-oxynaphthoyl diamide derivatives always results in a shift of the middle absorption band toward the short wave length region. Maxima of fluorescence of the doubled molecules occur in a shorter wave region than those of the "Half-molecules". The effect of conjugation on displacement of the fluorescence maxima is greater for the single than for the doubled molecules. Maxima of fluorescence of ortho-oxybenzoyl derivatives of benzidine occur in a shorter wave length region than those of the corresponding 2,3-oxynaphthoyl derivatives of benzidine. The effect of conjugation on displacement of fluorescence maxima is greater in the former case. Orig. art. has: 1 figure and 1 table.

ASSOCIATION: none

SUBMITTED: 08May64 ENCL: 01 SUB CODE: GC, OP

NO REF SOV: 007 OTHER: 004

Card 2/3

ACCESSION NR: AP5016600

ENCLOSURE: 01

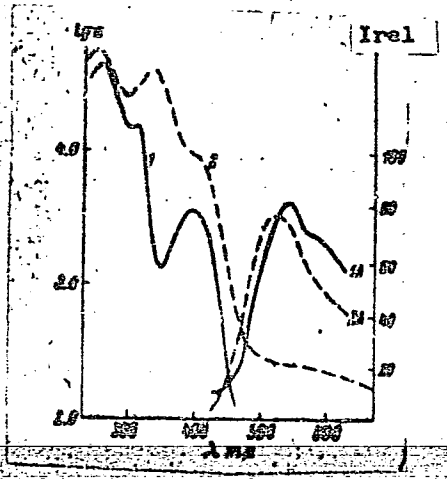

Fig. 1. Curves for absorption and fluorescence spectra of anilided 2,3-oxynaphthoic acid (1, 1A) and N,N'-di-(2,3-oxynaphthoyl)-benzidine (2, 2A).

Card 3/3

BONDARENKO, Ya.D.

Role of kidney function disorders in the development of hypertension.
Vrach.delo supplement '57:42-43 (MIRA 11:3)

1. Kafedra propedevtiki vnutrennikh bolezney (zav.-prof. F.Ya.Primak) Kiyevskogo meditsinskogo instituta.
(KIDNEYS) (HYPERTENSION)

BONDARENKO, Ya.D., YELIZAROVA, Ye.Ye.

Thrombophlebitis migrans as a symptom of the body's allergic reaction to cancer of the ovary. Vrach. delo no.8:855 Ag '58 (MIRA 11:8)

1. Kafedra propedevtiki vnutrennikh bolezney (zav. - prof. F.Ya. Primak) Kiyevskogo medtsinskogo instituta.
(VEINS--DISEASES)
(OVARIERS--CANCER)

BONDARENKO, Ya.D.

Effectiveness of gendon in the treatment of hypertension. Vrach. delo no.1:91 '59. (MIRA 12:4)

1. Kafedra propedevtiki vnutrennikh bolezney (zav. - prof. F.Ya. Primak) Kiyevskogo meditsinskogo instituta.
(HYPERTENSION) (RAUWOLFIA)

BONDARENKO, Ya.D.

Diagnosis of acutely developing and perforating gastric and duodenal ulcer in patients with long-continued cardiovascular insufficiency. Vrach.delo no.4:425-427 Ap '60. (MIRA 13:6)

1. Kafedra propedevtiki vnutrennikh bolezney (zav. - prof. F.Ya. Primak) Kiyevskogo meditsinskogo instituta.
(PEPTIC ULCER) (CARDIOVASCULAR SYSTEM--DISEASES)

PRIMAK, F.Ya., prof.; BONDARENKO, Ya.D.

External respiration and the significance of its disturbance in hypotonic disease. Vrach.delo no.7:9-15 Jl '60. (MIRA 13:7)

1. Kafedra propedevtiki vnutrennikh bolezney (zaveduyushchiy - prof. F.Ya. Primak) Kiyevskogo meditsinskogo instituta.
(HYPOTENSION) (RESPIRATION)

BONDARENKO, Ya.D.

Role of hypoxia in renal pathology in hypertension. Klin.med. 38 no.1:78-81 Ja '60. (MIRA 13:10)
(HYPERTENSION) (ANOXEMIA) (KIDNEYS—DISEASES)

BONDARENKO, Ya.D.

Pulmonary hemorrhages in hypertension. Vrach.delo no.10:40-43 O '62. (MIRA 15:10)

1. Kafedra propedevtiki vnutrennikh bolezney (zav. - prof. F.Ya. Primak) Kiyevskogo meditsinskogo instituta.
(HYPERTENSION) (HEMORRHAGE) (LUNGS--DISEASES)

VELIKORETSKIY, D.A.; LORIYE, K.M.; FINKEL', I.I.; GRIGORCHUK, Yu.F.; BERGER, L.Kh.; UTROBINA, V.V.; KHARCHENKO, V.P.; MESHCHERYKOV, A.V., student V kursa; OBEREMCHENKO, Ya.V., kand.med.nauk; NIKITIN, A.V.; MUKHOYEDOVA, S.N.; KUSMARTSEVA, L.V., assistent; KUZNETSOV, V.A., dotsent; KUKHTINOVA, R.A., assistent; BONDARENKO, Ya.D. (g. Fastov); KURTASOVA, L.V. (g. Fastov); PEVCHIKH, V.V.; CHURAKOVA, A.Ye.; BABICH, M.M.; KUZ'MIN, K.P.; PAVLOV, S.S.; SHEVLYAKOV, L.V., kand. med.nauk; IGNAT'YEVA, O.M.; ZEYGERMAKHER, G.A.; GUTKIN, A.A.; POLYKOVSKIY, T.S.

Resumes. Sov.med. 25 no.11:147-152 N '61. (MIRA 15:5)

1. Iz Instituta grudnoy khirurgii AMN SSSR (for Velikoretskiy, Loriye, Finkel'). 2. Iz bol'nitsy No.3 Gorlovki Stalinskoy oblasti (for Grigorchuk). 3. Iz Tyumenskoy oblastnoy bol'nitsy (for Berger, Utrobina). 4. Iz Karatasskoy rayonnoy bol'nitsy Yuzhno-Kazakhstanskoy oblasti (for Kharchenko). 5. Iz Gospital'noy khirurgicheskoy kliniki I Moskovskogo ordena Lenina meditsinskogo instituta imeni Sechenova (for Meshcheryakov). 6. Iz kliniki propedevticheskoy terapii Stalinskogo meditsinskogo instituta na baze oblastnoy klinicheskoy bol'nitsy imeni Kalinina (for Oberemchenko). 7. Iz kliniki gospital'noy terapii Voronezhskogo meditsinskogo instituta (for Nikitin, Mukhoyedova). 8. Iz kafedry obshchey khirurgii Kishinvoskogo meditsinskogo instituta (for Kusmartseva). (Continued on next card)

VELIKORETSKIY, D.A.---(continued) Card 2.

9. Iz akushersko-ginekologicheskoy kliniki Stalinskogo meditsinskogo instituta na baze bol'nitsy imeni Kalinina (for Kuznetsov, Kukhtinova). 10. Iz gospital'noy terapevticheskoy kliniki Izhevskogo meditsinskogo instituta (for Pevchikh, Churakova). 11. Iz Nosovskoy rayonnoy bol'nitsy Chernigovskoy oblasti (for Babich). 12. Iz Vyborgskoy mezhrayonnoy bol'nitsy (for Pavlov). 13. Iz 1-y gorodskoy bol'nitsy Tyumeni (for Ignat'yeva). 14. Iz 2-y infektsionnoy bol'nitsy g. Zaporozh'ya (for Zeygermakher). 15. Iz infektsionnogo i prozektorskogo otdeleniy Petrozavodskoy gorodskoy bol'nitsy (for Gutkin, Polykovskiy).

(MEDICINE--ABSTRACTS)